

## SCALABLE SELF-ROUTING SUPERCONDUCTOR SWITCH

## ABSTRACT OF THE DISCLOSURE

A crossbar switch includes a cross-point matrix with  $n$  input rows of cross-points and  $m$  output columns of cross-points. The crossbar switch further includes  $n$  decoders connected to the  $n$  input rows. Each of the  $n$  rows includes a single serial address input, a shift input and a data input. A serial address and data enter the address input and the data input in parallel. A shift sequence is transmitted on the single shift input. The data flows before the shift sequence on the shift input is complete. The data is shifted through the crossbar switch using a clock that is generated on-chip using a clock recovery circuit. The decoder converts a binary address input into a serial address and includes an  $N$ -bit counter with a plurality of toggle flip-flops. The crossbar switch is implemented using superconductor digital electronics such as rapid single flux quantum (RSFQ) logic.